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ABSTRACT

The Izaak Walton League is committed to investigation and dialogue that contribute to a sustainable world. An understanding of conservation continues to evolve and mature as new science comes to light and is transformed, through civil discourse, into common sense policy and action. The information presented in this action guide continues a conversation about population and the environment that the League has pursued for many years. The guide is divided into five sections: (1) Policy Background; (2) Perspectives; (3) Questions and Answers; (4) Action Steps; and (5) Resources. Use of this guide can be a first step toward achieving sustainability of population and environment. (DDR)

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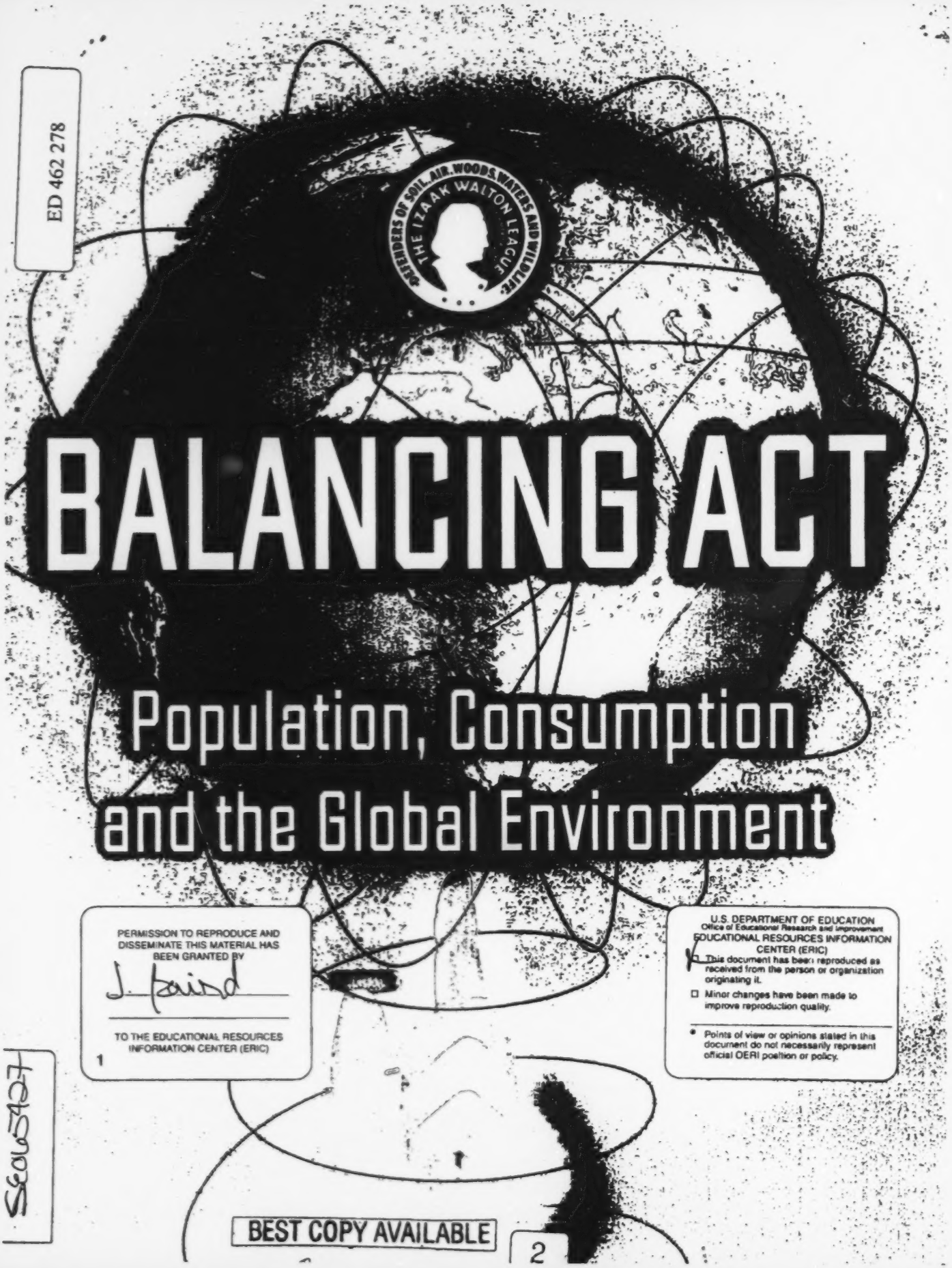

BALANCING ACT

Population, Consumption and the Global Environment

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BALANCING ACT

Population, Consumption and the Global Environment

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For more information about the Sustainability Education Program's Sustainable Population Campaign, to join our grassroots network, or to request additional copies of this *Action Guide*, contact:

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TABLE OF CONTENTS

Introduction 5

Policy Background 7

Perspectives 10

Matthew Christenson, International Programs Center, U.S. Census Bureau
Global Population Profile: 2000 – A Summary 10

David L. Trauger, Northern Virginia Center, Virginia Polytechnic Institute and State University
Human Population Growth and Environmental Carrying Capacity 16

Suzanne Petroni, U.S. Department of State
What Does Population Have to Do with U.S. Foreign Policy? 22

Q & A 26

Action Steps 36

Carrying on the Dialogue
Additional Actions
Summary Sheet

Summary Sheet for Dialogue and Action 38

Resources 39

Publications
Government Agencies and Intergovernmental Organizations
Non-profit and Advocacy Organizations

Endnotes 41

INTRODUCTION

To state that there are essential linkages between people and the environment seems obvious. We get what we need to live—drinkable water, breathable air, productive soil, and open spaces for recreation—from nature. When we overuse a resource or create excessive waste the results of our impact—the dust bowls of Oklahoma, the burning Cuyahoga River, or the litter and damaged flora on an overused hiking trail—are clear.

These relationships have been a matter of belief, ritual, investigation, and commonsense since ancient times. So why, in recent years, have the impacts of population growth on the environment become a matter of contentious debate? The problem is mainly one of scale.

While we are skilled at planning and organizing our resources on a local level, we encounter problems when issues extend beyond our backyards. In the last 100 years, our interactions with the environment have expanded globally. Documenting and understanding these relationships has become a tricky business for scientists, conservationists, and policymakers. Such research is relatively new and requires the interplay of many disciplines—environmental sciences, demographics, economics, and sociology. Further complications arise when we discuss how to solve these problems. Political, religious, and economic "agendas" often run ahead of the facts. Alternately, we sometimes avoid conflict and hard choices by deferring action.

Despite these difficulties, it has become increasingly important that we understand these relationships. In the 21st century, we are faced with a growing world population that has already exceeded six billion and is growing by 77 million people each year. At the same time, consumption of goods and services per capita are rising throughout the world. The technology underlying that consumption requires tremendous volumes of natural resources and creates byproducts, which are difficult for the Earth to assimilate safely. Current estimates suggest that we have already lost one quarter of the Earth's topsoil and one fifth of its agricultural land.[1] In addition, by the end of the 21st century we are projected to have lost more than half of all the Earth's animal and plant species. If our generation is to succeed in creating a sustainable world, we must understand the relationships

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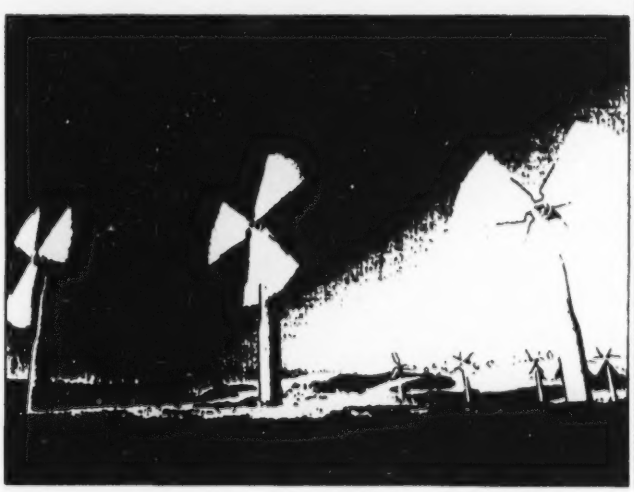
between people and nature, begin to discuss them in a constructive fashion, and act accordingly.

The Izaak Walton League has always been committed to this kind of investigation and dialogue. Our understanding of conservation continues to evolve and mature as new science comes to light and, through civil discourse, is transformed into commonsense policy and action. The information presented in this *Action Guide* continues a conversation about population and the environment that the League has pursued for 50 years.

In 2001, the League began an organization-wide review of IWLA policies on population. The review was requested by League members who felt that these policies, formed in the 1970s, should be reviewed in light of global changes that have occurred over the last 30 years. The League's Carrying Capacity Resource Committee and the Sustainability Education Program (SEP) responded to the invitation by sponsoring a series of events to assist members in examining this policy.

The first event was a panel of experts that convened at the 2001 IWLA National Convention, titled "People, Policy, and Conservation in a World of Six Billion." Three experts presented the latest demographic data from the U.S. Census Bureau, information on environmental impacts from a wildlife biology perspective, and an explanation of U.S. foreign policy support for family planning. SEP then decided to supplement these presentations with additional information and create this *Action Guide*. This guide allows us to share this information with the wider membership of the League and with our other colleagues and supporters.

This *Action Guide* is divided into five sections: Policy Background, Perspectives, Q&A, Action Steps, and Resources. The Policy Background section provides a brief history of how the League got involved in population issues and environmental relationships. It also highlights the League's current efforts to broaden the discussion among our members and the general public.



In the Perspectives section, we have published edited versions of the three expert viewpoints on population and environmental relationships. These presentations were originally delivered in the previously mentioned panel of experts at the 2001 IWLA National Convention, held in Ft. Mitchell, Kentucky.

The Q&A section provides answers to basic questions about population trends, family planning, reproductive health, environmental impacts, IWLA policies, and U.S. support for programs addressing population and sustainability. League members and national staff posed these questions following the convention panel.

The Action Steps section offers suggestions for expanding this dialogue and providing your input as the League revisits its policies on population and the environment. This section also contains some suggested actions to help you formulate responses at the individual, community, and national levels. It is followed by the Resources section, which details where to get more information about population, the environment, and sustainability.

Empowered with an understanding of the complex relationships between population and the environment, we can then work together toward sustainability. How we achieve sustainability will be determined by the knowledge we gain and the choices we make today. Reading the information presented here is only the first step.

POLICY BACKGROUND

As longtime IWLA member and leader William Voigt, Jr. noted in his book, *Born with Fists Doubled: Defending Outdoor America,* Izaak Walton League members are very familiar with the concept of sustainability.[2] Concerns about carrying capacity—a term derived from ecology, where it means the maximum number of animals in a species that a habitat can support indefinitely without degrading the resource base — were part of the motivations for the League's founding in 1922. At that time, however, the founders were specifically concerned about declining fish, bird, and mammal populations, rather than the increasing human population.

As early as 1948, the League recognized the negative effects that unrestrained human population growth and resource consumption place on the environment. William Vogt, in his book *Road to Survival,* called for renewed attention to the growing human population and increased efforts to curtail this growth.[2] Vogt was an ornithologist who worked in the conservation office of the Pan American Union, later called the Organization of American States. His ideas meshed with the League's holistic view of conservation. In part because of his book and the debate it initiated, he received the organization's first 54 Founders Award in 1949.

From the late 1950s through the early 1970s, discussion of these issues took place in the League's national magazine, *Outdoor America.* Articles by leading thinkers in conservation repeatedly called for increased attention to population growth and its impacts on the environment. In a 1963 article, then-Secretary of the Interior Stewart Udall explicitly linked population growth to increased pressures on wilderness areas.[3] In 1970, an article by IWLA National President Raymond Haik detailed the League's involvement in the first United Nations conference on population growth and the impacts of humans on the environment.[4]

Later that year, League members culminated several years of debate and adopted a policy on population at their annual national convention, becoming one of the first national conservation organizations to do so. The resolution directed in part "...that appropriate governmental and private agencies undertake scientific research, and encourage necessary policies, attitudes, social standards and programs which will, by voluntary means consistent with human rights and individual conscience, bring about the stabilization of population." Six years later, reflecting the growing national debate on abortion rights, members voted to revise the policy to state that the League neither supports nor opposes abortion.

In the early 1990s, several private foundations—concerned about

RAGHU RAI, FOR THE DAVID AND LUCILE PACKARD FOUNDATION

IWLA Population Policy

1) The League urges governments and private agencies to conduct scientific research and encourage polices, attitudes, social standards, and programs that will—through voluntary actions consistent with human rights and individual conscience—bring about the stabilization of human population. Government and private efforts should include but not be limited to:

a) Development of a national policy on population and natural resources.

b) Incorporation of sustainable development principles in foreign and domestic policies.

c) Development of goals for stabilizing populations that incorporate the principles of economic development and environmental conservation.

d) Dissemination of family planning or contraceptive information to all segments of society.

e) Emphasis on the desirability of limiting family size to two or fewer natural children.

f) Education about sex and population problems in the nation's educational institutions.

g) Provision of population education for people of all ages.

h) Support of national and international efforts to stabilize population through funding for family planning and by promoting equality between men and women.

2) The League supports the right of the individual to freely choose methods of fertility control consistent with the dictates of individual conscience and accepted medical practice. The League neither advocates nor opposes abortion.

the growing impacts that people were having on the environment—sought to increase the attention environmental organizations devoted to the issue. With its firmly established policy, the League was well positioned to receive support. A grant from the Pew Foundation in 1993 enabled the League to launch its first program of action based on its policy. The program, named the Carrying Capacity Project, focused on research and education in the areas of population, consumption, and efficiency.

The League's efforts continued with a new series of resolutions that grounded the issue of population in the emerging national discussion of sustainability. As stated in policy resolutions approved by the membership in 1994, through sustainability the League would "promote a productive equilibrium between people and our environment by bringing population and consumption into balance with the resource base." Grounding population efforts in both sustainability and resource consumption in this way has proved the best way to reflect the League's holistic conservation approach.

Member-adopted League policies ultimately began to focus on specific steps to curb population growth within the context of

League Policies: A Broader Context

The work of SEP and its Sustainable Population Campaign are based in member-adopted policies on sustainability and the evolving global discussion on population and the environment. A guiding principle in implementing the Izaak Walton League's policies are the ideals expressed in the Program of Action adopted at the 1994 United Nations International Conference on Population and Development in Cairo, Egypt. The Cairo Program, as it's generally called, was signed by 179 countries and outlines a 20-year plan to balance human population and the Earth's natural resources.

This program calls for an expansion of opportunities for individuals through promotion of gender equality, and an end to practices that endanger the long-term health of environmental systems. Its principles are grounded in the belief that long-term population stabilization can only be accomplished through combined efforts to reduce poverty, achieve economic progress, improve environmental protection, and reduce unsustainable consumption and production patterns.

In addition to internationally recognized principles, the League has consistently supported the United States' long-standing support of international family planning and development assistance. However, U.S. funding priorities have not always coincided with the League's policy positions.

Beginning in 1993, there were significant increases in U.S. support for international family planning programs. Funding reached an all-time high of $541 million in 1995. In 1995, a newly elected Congress dramatically reduced overseas development aid, cutting aid for international family planning disproportionately to only $356 million.

From 1996 through 1999, funding remained capped at $385 million. In 2000, funding declined to $372 million due to additional congressionally mandated restrictions. Finally, in 2001, support for international family programs was raised to $425 million. While the current administration has expressed commitment to the continued provision of healthcare services including family planning, it has not yet been clear how far that support will extend.

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Note: For more information on the Cairo Program please refer to the IWLA publication *Our Planet, Ourselves: Balancing World Population for a Sustainable Future,* listed in the Resources section of this *Action Guide.*

community planning and sustainable resource consumption. These steps include the development of a U.S. national policy on population and natural resources, dissemination of family planning information, and support for national and international efforts to stabilize population. The steps emphasize the importance of economic development and promoting equality between men and women in employment, legal status, and education.

In 1996, the Carrying Capacity Project was renamed the Sustainability Education Program (SEP). SEP currently uses four strategies to accomplish its objectives: general education, advocacy, direct support, and capacity building. General education activities target League members, supporters, and the general public to change attitudes and awareness and to promote information sharing. Advocacy advances League positions on a state and national level. Direct support to grassroots community includes assistance with sustainability projects and planning efforts. Capacity building is helping League leaders at different levels to develop the knowledge and skills to support local sustainability activities. In addition, SEP works with its volunteer advisory committee—a council of leaders in the Chesapeake Bay region and several state programs to promote implementation of League policy on sustainability, population, and resource consumption.

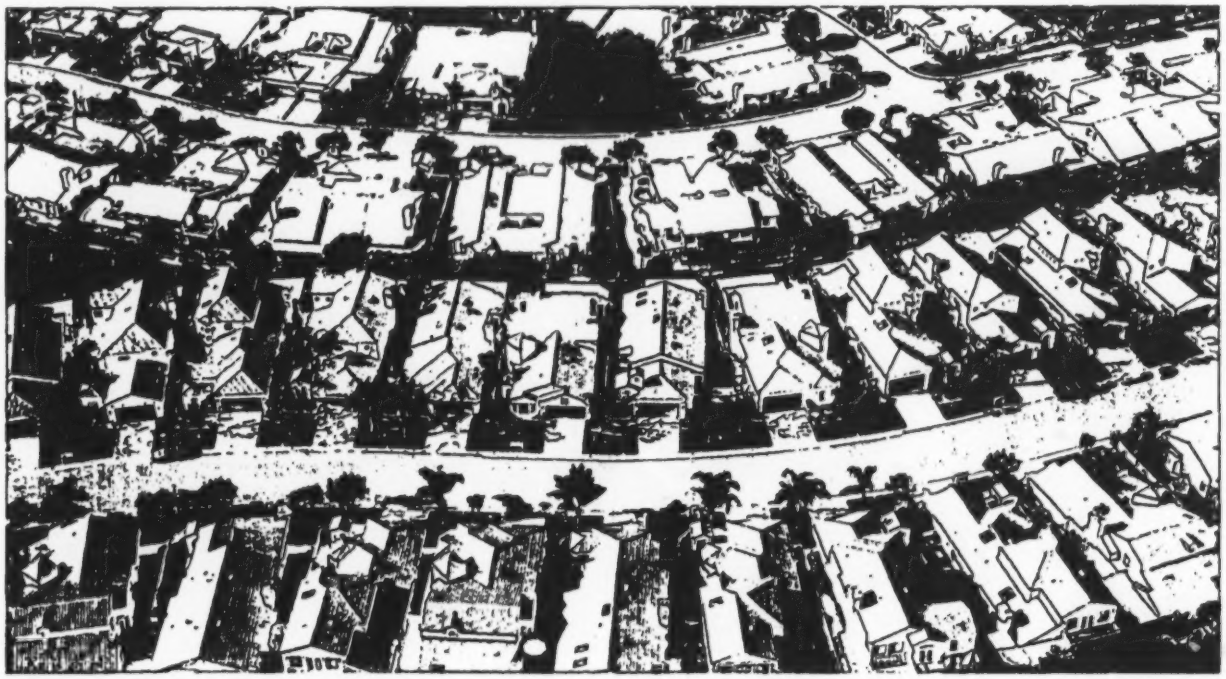
In 2001, SEP expanded its efforts on population issues by creating the Sustainable Population Campaign. The campaign focuses specifically on population issues and their role in creating sustainable communities. Campaign staff support IWLA members as their interest in population and environmental relationships evolves. This support includes providing up-to-date information on population trends and environmental impacts, as well as highlighting opportunities for local action and national advocacy.

Case Study: Southeastern United States

The population of the southeastern United States is rapidly growing. Over the past decade, Alabama's population has grown by 10 percent, Kentucky's by nearly 10 percent, and Tennessee's by about 17 percent. Nashville alone has quadrupled in size since 1900 and now has a population of more than half a million.

This population growth, coupled with a lack of planning, has had a considerable impact on the region's rivers. For example, 69 fish and mussel species in Alabama's Cahaba River are rare or imperiled, as are plants like the Cahaba lily—which is unique to the river. New housing and road construction is leading to habitat fragmentation by closing off riparian corridors that provide migration routes for many species.

Source: *Disappearing Landscapes: The Population/Environment Connection.* 2001. World Wildlife Fund – U.S., Center for Conservation Innovation, Conservation Strategies Unit, Washington, D.C.



EXPRESS IMAGES

PERSPECTIVES

As part of an ongoing discussion about sustainability and population, the Izaak Walton League held a special panel at the 2001 IWLA National Convention in Ft. Mitchell, Kentucky. Three experts were invited to present data and observations from their respective fields:

- **Matthew Christenson** of the U.S. Census Bureau provided an overview of current global population trends based on a report, Global Population Profile 2000.
- **Dr. David Trauger**, director of the Natural Resources Programs at the Northern Virginia Center of the Virginia Polytechnic Institute and State University, discussed the implications of increasing human population and consumption for the environment based on a review of literature, and shared his own observations as a wildlife biologist with the U.S. Fish and Wildlife Service.
- **Suzanne Petroni**, formerly of the United States State Department and later a staff member of the Summit Foundation, gave an assessment of the relationship between U.S. foreign policy and population issues.

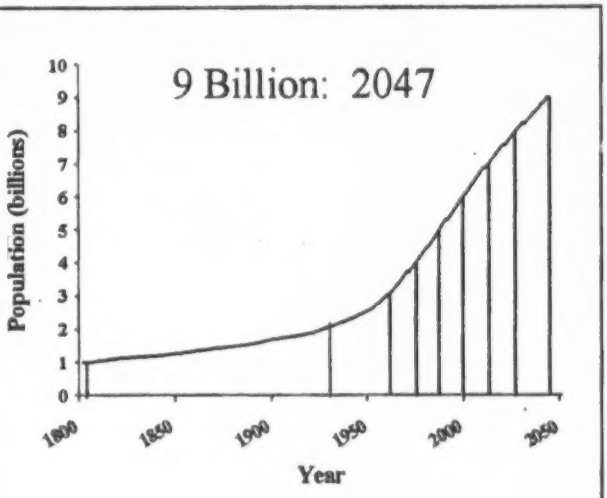
These edited presentations are provided to give expert perspectives on current research, policies, and thinking that define the current debate on population and environmental issues.

Global Population Profile: 2000 — A Summary

Remarks prepared by Matthew Christenson of the International Programs Center, U.S. Census Bureau

Introduction

A profile of global population at the dawn of the 21st century entails an exploration of some remarkable trends. In 2000, the size of global population had just passed 6 billion. That year, the world experienced a net increase of approximately 77 million people. This growth was due, in part, to an average level of global fertility[1] that had couples producing more children than were needed to replace themselves. This occurred despite significant fertility declines in recent years.



Time spans between the addition of each billion to global population projected to 9 billion in 2050.

An important determinant of population growth, however, was the age-sex composition of the population. This means there was a large number of women in their childbearing years relative to the size of the rest of the population. Finally, the rapid aging of the world's population was an increasingly important factor. Together, these trends contribute to a description of global population that is worthy of discussion.

The Size and Growth of World Population

According to the U.S. Census Bureau, world population reached 6 billion on June 19, 1999. This figure was more than 3.5 times larger than the population at the turn of the 20th century and more than double the size of the Earth's population in 1960. Never before had the earth sustained such a large human population.

The time it took for global population to grow from 5 billion to 6 billion—just 12 years—was shorter than the interval between any of the previous billions. This was just slightly less time than the 13 years between 4 billion and 5 billion, and considerably less time than the 118 years between 1 billion and 2 billion.

In 2000, 77 million people were added to the world's population. If all of these people formed a new country, it would have been the 50th largest country in the world—slightly bigger than Egypt and slightly smaller than Vietnam. Adding people at this rate was equivalent to:

- 2.5 people per second;
- 146 people per minute—the passenger capacity of a Boeing 727 airplane;
- 200,000 people per day—the approximate capacity of two large sports stadiums;
- 6.5 million per month—equal to the population of Massachusetts.[RTF annotation: Powerpoint graphic]

At this rate of growth, the world will add the equivalent of the population of Western Europe in the next five years.

On the other hand, in some ways it can be argued that the world has turned the corner on the pace of world population growth. In relative terms, the average annual global population growth rate peaked in 1963-64 at 2.2 percent. Then, in 1989-90, the absolute annual global population increase reached an apex of 87.4 million people per year and began to decline. If Census Bureau projections are correct, the pace of global population growth will continue to decline into the foreseeable future. As a result, reaching the 7, 8, and 9 billion markers of world population should take increasingly longer periods of time. In the long run, researchers engaged in long-term projections suggest that the world might not see the 10 billionth person, and there is very little likelihood that the population of the globe will again double.

Regional Patterns in Population Size and Growth

In 2000, China was not only the most populous country in the world; it was also more populous than most regions of the world. This is a situation that has existed since 1950. However, India,

Case Study: Madagascar's Forests

Madagascar, an island nation off the eastern coast of Africa, has an average population growth of about 2.6 percent per year—well above the current global annual average of 1.3 percent. In Toliara Province, which includes the unique Spiny Forest Eco-region, growth rates are sometimes 5 percent or more. In 1999, the total population of Toliara Province was 2.1 million—a 22-percent increase since 1993, driven by high migration and fertility rates.

Local people have long used slash-and-burn agriculture as a survival strategy in this region's harsh climate. Droughts are regular occurrences that have pushed people to migrate to forested and urban areas where resources are more readily available. This migration places enormous pressures on the limited amount of available arable land. Since the poor soil generally provides only two or three years of crops, farmers must regularly move on, which results in more acres being cleared and degraded.

In addition, more than 90 percent of Madagascar's urban population use charcoal or fuelwood for energy in their homes. To fill this need, about 24,700 acres of forest are lost each year. If current urban population growth rates of 5 to 6 percent per year continue, approximately 105,000 acres of forest will be felled by 2010.

Source: *Disappearing Landscapes: The Population/Environment Connection.* 2001. World Wildlife Fund – U.S., Center for Conservation Innovation, Conservation Strategies Unit, Washington, D.C.

the second most populous country in the world since 1950, has been gaining rapidly on China in both absolute and relative terms. According to Census Bureau projections, India will eclipse China in total population in 2036.

The reason for this can be found by examining annual population increase. Since 1950, India has contributed more people to the world than any other country. The rest of less-developed Asia and Oceania was also a key contributor to annual population growth in the last 50 years. In the 1950s, the developed world was a major contributor to annual global population increase. By 2000, however, its contribution had been dwarfed by that of the less-developed world.

By 2050 the less-developed countries in Asia and Oceania, excluding India and China, are expected to be more populous than any other world region. This is due, in part, to countries such as Indonesia, Pakistan, and Bangladesh having become among the world's most populous. With India and China, they will continue to comprise more than half of the world's population through 2050.

The patterns of growth, however, will change markedly in the next 50 years. Sub-Saharan Africa is expected to become the primary source of global population increase by 2050, as countries such as Nigeria, Ethiopia, Congo (Kinshasa), and Madagascar rise quickly in the rankings of the largest contributors. China, conversely, is expected to begin to lose population in larger numbers than any other country or region by 2050. Similarly, the developed world is expected to contribute fewer and fewer people to world population increase over the next 50 years and to begin experiencing population declines by 2050.

Deconstructing Population Growth

Looking at two important questions, when considering the effect of population growth on the environment, is crucial. First, what is the relationship of individual behavior to the population growth? Second, are there different ways in which a population can grow that may have unique impacts?

Individual Behavior and Population Growth

Demographers frame population growth in terms of individual behavior by shifting the focus away from the absolute number of births and deaths and toward the levels of fertility and mortality. While absolute numbers describe whole populations, fertility and mortality are expressed in terms of the average experience of the individual. To describe how this is done, it is important to understand two concepts.

The first is the "total fertility rate." Put simply, the total fertility rate is the average number of children being born per woman at a given point in time. Thus, a total fertility rate of three would mean that the average woman in a population would have three children in her lifetime.

The second concept that is important to understand is the replacement level of fertility. For our purposes, we will talk about the replacement level of fertility as the level of fertility that would be needed in the long run to produce a population with no growth. To demographers, the term "replacement" means that the average couple would be having only enough children to assure that two of their children, one boy and one girl, would reach adulthood and "replace" them in the population. The replacement level of fertility, therefore, is directly tied to level of mortality in a country.

Today, it is commonly held that the replacement level of fertility is 2.1 children per woman. However, this is not the case. In fact, the replacement level of fertility actually varies quite widely over time and across the globe. The International Program Center of the U.S. Census Bureau has used the data it produces to calculate the actual replacement level of fertility on a country, regional, and global level. The results are somewhat surprising.

In 2000, the replacement level of fertility for the globe was actually 2.3 children per woman. For individual nations, the replacement level of fertility ranged from a low of just over 2 children per woman in several more developed countries, to a high of 3.5 children per woman in Angola.

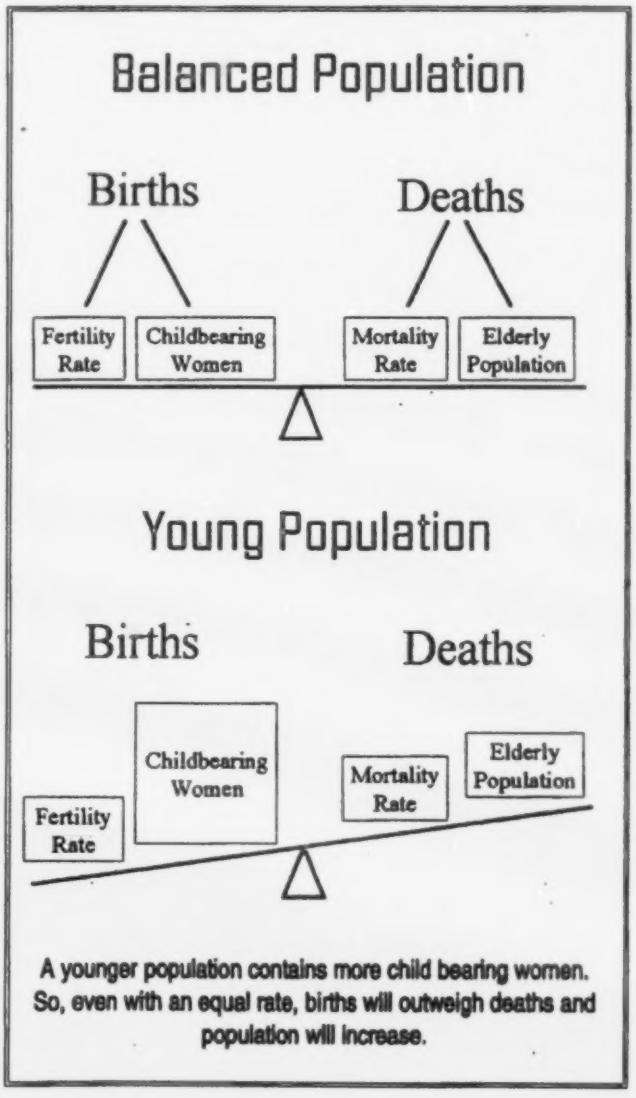
Over the next 50 years, Census Bureau projections suggest that the replacement level of fertility for the globe will decline gradually and reach approximately 2.1 children per woman in 2050. This decline will also be experienced on a regional and country level—again, with the exception of areas where HIV/AIDS is most prevalent.

To get an idea of how this is possible, consider the level of mortality across the globe. In 2000, the average life expectancy at birth was 63.7 years globally. The highest levels of life expectancy at birth in 2000 were in Europe and North America. The lowest levels, in contrast, were in Sub-Saharan Africa—most notably in those countries hardest hit by the HIV/AIDS pandemic. The replacement levels of fertility mirror these differences. In the future, Census Bureau projections suggest that the global level of life expectancy at birth will increase slowly but steadily to an average of 76.8 years in 2050, thus causing the decline in the replacement level of fertility. The life expectancy for most countries is expected to mirror this trend, resulting in an almost universal decline in the replacement level of fertility across the globe.

So how do the current levels of fertility across the globe compare to the replacement level? In 2000, the globe's total fertility rate was 2.7 births per woman—just under one-half of a child per woman above the replacement level. If current trends persist, the gap between the actual level of fertility and the replacement level will decrease gradually and dip below the replacement level before 2050.

At the country level in 2000, fertility was below replacement in almost all of the more-developed world and in many countries in the less-developed world. Still, the majority of less-developed countries had fertility rates above replacement. If current trends continue, the number of countries with above replacement fertility is expected to decline gradually over the next 50 years. In addition, where fertility continues above replacement, the gap between it and the actual level of fertility is expected to shrink.

Before leaving this topic, there is one more very important



A younger population contains more child bearing women. So, even with an equal rate, births will outweigh deaths and population will increase.

SOURCE: IBM ITEM UNDERSTAND, U.S. CENSUS BUREAU

point—perhaps the most important point of all—to make about the connection between individual behavior and population growth. Achieving the replacement level of fertility would lead to zero population growth in the long-term. In the short term, however, a population that has a history of growth will continue to grow for a while even after the individuals in that population adopt zero-growth behaviors. The reason for this is the age-sex composition of the population.

How Populations Grow: Age-sex Composition and Population Momentum

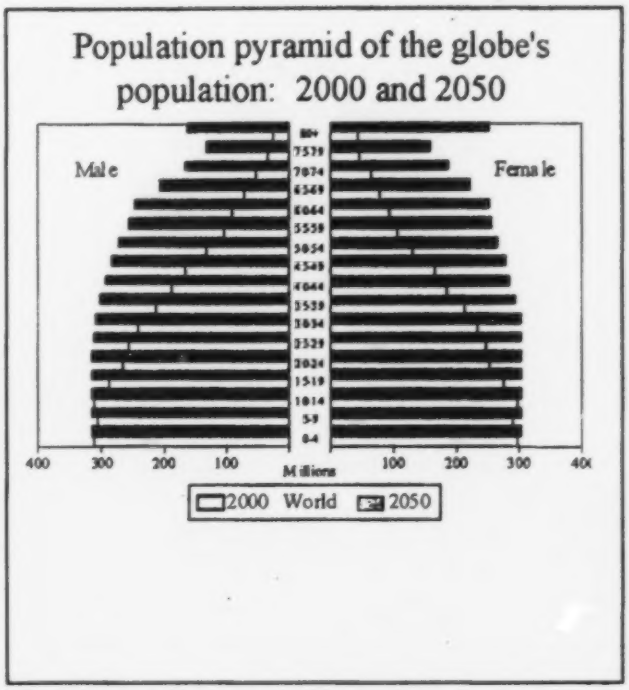
In general, populations with a history of above-replacement fertility have a larger proportion of people at younger ages than do populations that have been at or below replacement. Said another way, populations with a history of above-replacement fertility have a smaller proportion of people at older ages than do populations that have been at or below replacement.

Why is this important? Well, younger populations produce more births than older populations. Conversely, older populations produce more deaths than younger populations. So, when the population is young it is likely that births will outnumber deaths—even when individuals are exhibiting zero-growth behaviors. Demographers call this phenomenon "population momentum." The same goes for the reverse scenario. When the population is old, it is likely that deaths will outnumber births, even when individuals are exhibiting zero-growth behaviors. This phenomenon is called "negative momentum," and will soon become an issue in countries with a history of below-replacement fertility (e.g., Western Europe).

So, what can we do with this information? Demographers have devised a way to break down the growth of the population in a given year into the contributions of above-replacement fertility, changes in mortality, net international migration, and population momentum. Let's look at some numbers for the year 2000 and beyond.

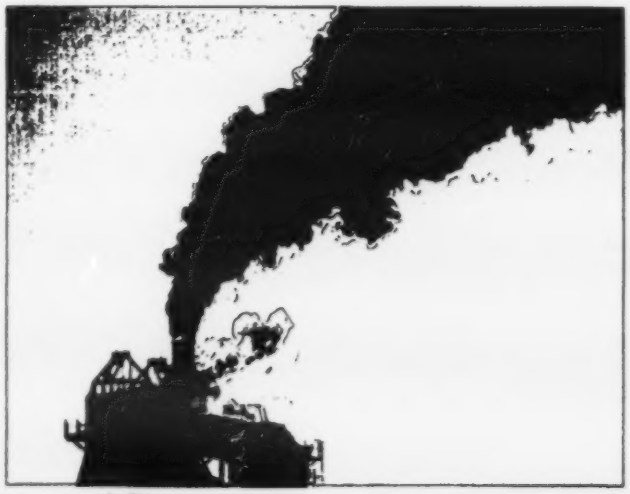
In 2000, population momentum (i.e., the large numbers of childbearing women) was the principal driver of the growth in the world's population, accounting for more than two-thirds of population growth. Above-replacement fertility played a lesser role in population growth, and mortality decline played almost no roll at all. Within countries, the age-sex composition was the dominant factor in most of Asia and the Americas, whereas above-replacement fertility was the principal driver in Sub-Saharan Africa. Below-replacement fertility was the primary cause of change in Europe.

Over the next 50 years, the contribution of population momentum



to population growth is projected to become increasingly dominant. By 2050, population momentum is expected to become the sole cause of growth for the world. On a regional level, this momentum will be the principal driver of growth in Asia, Africa, and the Americas, and, notably, of a decline in population in Europe.

Before leaving this topic, a quick word on migration. In 2000, there was a net shift across national boundaries of approximately 3 million people. China was by far the largest sender of people, having a net outflow of more than 500,000 people into other countries. Iran and Mexico were the next largest senders, each transferring approximately 300,000 people to other countries. Almost every net sender of migrants was a less-developed country.



On the other side of the equation, the United States absorbed almost one-third of the total net migration in 2000 and three times the volume of the next-largest receiver country. Each of the remaining top ten net receivers was also a more-developed country except for Afghanistan and Singapore. Afghanistan made the list in 2000 due to the (expected) return of refugees after reductions in the intensity of military conflicts there, and Singapore be-cause of its proximity to China, the largest net-sending country.

In relative terms, the countries where net migration had the most impact on population size in 2000 (whether positive or negative) were either island nations or nations with recent experience with military conflict. For the majority of larger countries, however, the relative effect of net migration was small to moderate.

The effect of population growth on things such as the environment will vary. For instance, large growth in the young population of a country will cause a different impact than will growth of the labor force or of the elderly. For this reason, it is worth taking a brief look at the projected growth of the globe's population according to different age groups.

First, let us start with the current age distribution of the globe's population. In 2000, the age groups with the largest numbers of people were the very young, with each successive age group being slightly smaller. Children (0-14 years of age) made up 30 percent of the world's population. Youth (15-29 years of age) and women of childbearing age (15-49 years of age) both comprised 26 percent of the population. The potential labor force (15-64 years of age) made up 63 percent of the population. The elderly (65 years of age and older) made up only 7 percent of the globe's population.

Over the next 25 years, the growth of the populations in different age groups will vary markedly. First, while the absolute number of children is expected to remain relatively stable, its size relative to the total population is expected to decline significantly. The numbers of women of childbearing age and youth are expected to increase modestly while their proportion of the total population slightly decreases. The potential labor force is expected to grow steadily while its proportion of the total stays approximately the same. Finally, the elderly population is projected to grow considerably in both absolute and relative terms.

CORBIS IMAGES

A Note on the Sources and Reliability of Data on Population Growth

Finally, it is important to look at the sources and the reliability of the existing data on population growth.

The primary producers of estimates and projections of global population are the United Nations, the World Bank, and the International Programs Center of the U.S. Census Bureau. Estimates and projections are based on intense scrutiny of censuses, registration of vital data such as births and deaths, demographic and household surveys, and other administrative records that reflect the size of important variables in populations such as age and sex. Data was pulled from a study conducted by the National Academy of Sciences and chaired by two prominent demographers—John Bongaarts and Rodolfo Bulatao. They recently reviewed the Census Bureau's current estimates and projections and came up with the following conclusion:

"Current world population projections to 2050 are based on reasonable assumptions and provide plausible forecasts of world demographic trends for the next few decades.... This conclusion does not imply any endorsement of the projections made for specific countries; the panel has examined the general methodology of world projections, not the particular input data and assumed trends applied to each country."

Complete Citation:
Panel of Population Projections. John Bongaarts and Rodolfo A. Bulatao, Editors. Beyond Six Billion: Forecasting the World's Population. Washington, D.C. National Academy Press, 2000.

[1] Fertility is defined as the average number of births per woman in a given population.

Human Population Growth and Environmental Carrying Capacity

Remarks prepared by David L. Trauger, director of Natural Resources Programs, Northern Virginia Center, Virginia Polytechnic Institute and State University, Falls Church, Virginia

Introduction

Conservationists have long understood the relationship between human populations and the abundance and distribution of living resources.[5] Several professional societies have longstanding policy statements on the relationships between human populations and fish and wildlife resources, including the Wildlife Society and the American Fisheries Society. In addition, mainstream conservation or environmental organizations like the National Wildlife Federation, the Izaak Walton League of America, and the National Audubon Society also have staffs and programs dealing with policy issues related to human population growth.

However, with a few notable exceptions, most professional ecologists have paid little attention to human population relationships to the environment.[7] The same can be said about conservation biologists.[8] The Ecological Society of America (ESA) recognized the pivotal importance of human population size and distribution to the health of ecological systems in its Sustainable Biosphere Initiative report.[9] Although the report clearly identified human populations as "exerting tremendous pressures on Earth's life support capacity," it did not call for specific research on the ecological relationships of human populations. Subsequently, researchers called for an ESA committee to develop recommendations aimed at "improving our understanding of the ecological factors determining human carrying capacity and influencing human population growth and distribution." [7]

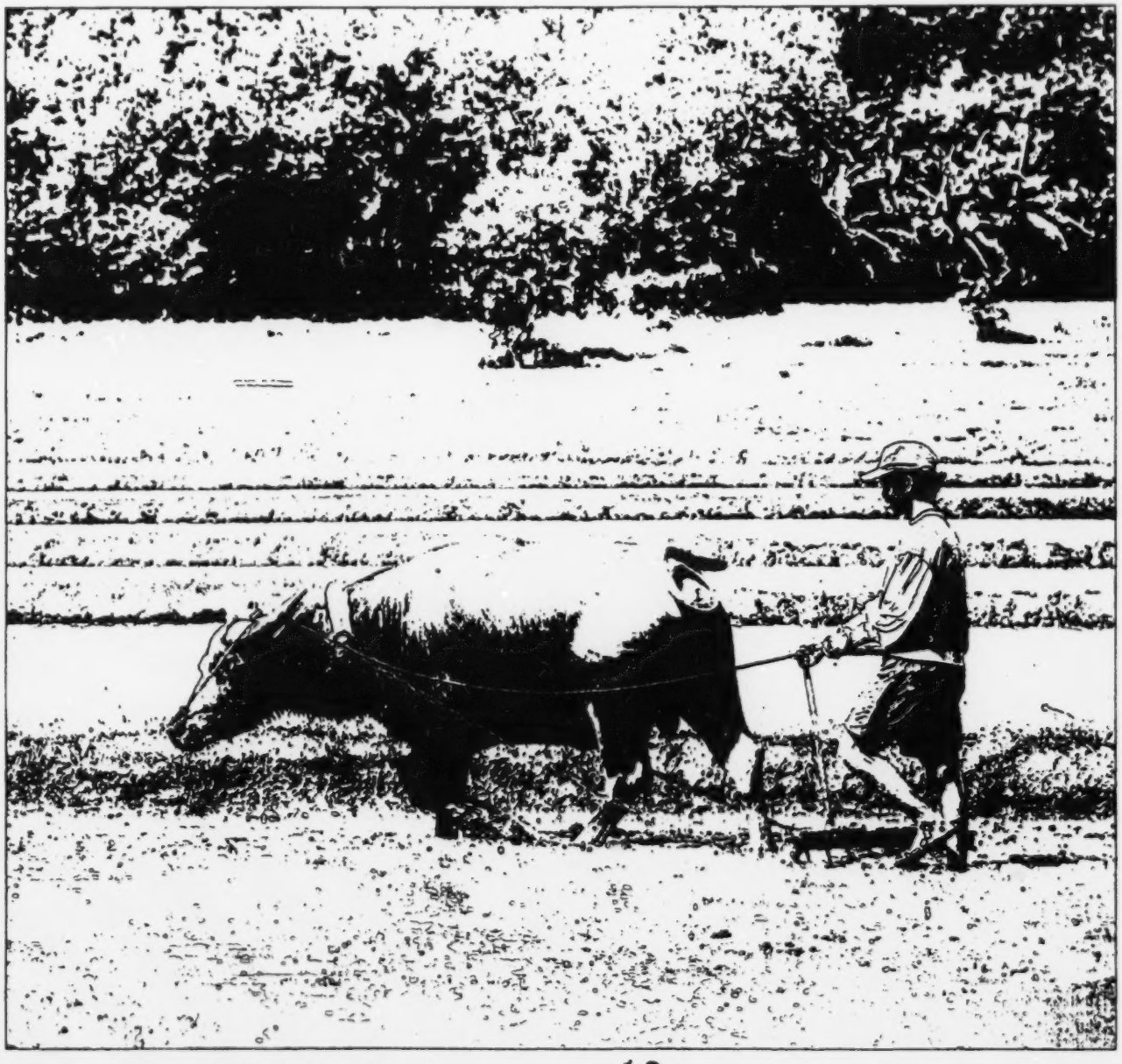
Relationships between Population and Environment

In 1994, some scientists began calling human population growth and its impacts the most pressing social and scientific issue of all time.[7] These same scientists observed that the lack of study of human-ecological relationships was puzzling for several reasons:

1) Carrying capacity is inherently an ecological concept and was developed by ecologists.

2) Many ecologists have used the concept of carrying capacity in their studies of the dynamics and regulation of animal and plant populations.

3) Many, if not most, ecologists are also environmentalists and see human population size and overexploitation of natural resources as the root cause of most environmental problems.



4) Virtually all ecologists are familiar with the basic concepts of demography, and most are already trained in the theoretical approaches used by demographers.
5) Detailed databases on human demography and the physical, social, and economic conditions contributing to demographic patterns are readily available and easy to use.

The scientists further concluded that the study of human populations had remained outside the traditional ecological research agenda mainly due to concerns that findings would be controversial and unlikely to be accepted in the ecological community.[7]

Population and environmental linkages are extremely complex; research into them is only in the beginning stages. Family planning and environmental politics are contentious areas, and personal views on these issues often influence scientific research and public discussions. Despite intense current international discussion, population and environment relationships defy clear and comprehensive understanding.[10] Recently, the American Association for the Advancement of Science (AAAS) published the AAAS Atlas of Population and Environment to bring together population-environment relationships in ways to make them more accessible to policy and decision makers, students, and the general public.[11]

Impacts of Population and Consumption

Most scientists agree that the overall human pressure on the environment is a product of three factors: population, consumption, and technology.[11] Population is the total number of people; consumption is the amount of resources each person consumes; and technology is how these resources are used and how much waste is produced for each unit of consumption. In both public and academic debates, one of these factors is often singled out and emphasized as the main cause of our rising environmental impact: population growth. Another is polluting technology. Others stress excessive consumption, policy and market failures, or common ownership of key environmental resources. The bottom line is that all of these viewpoints are correct some of the time, and none of them is correct all of the time. A comprehensive approach to understanding the population-environment relationship must include all three.

In 1971, two scientists (Paul Ehrlich and John Holdren) formulated the IPAT equation to integrate the three primary factors in human interaction with the environment: [12]

I = P x A x T, or
Environmental Impact = Population x Affluence x Technology

Environmental impact is the product of population, multiplied by affluence (or level of consumption per person), and then multiplied by the amount of resources required to produce this amount of consumption. This simple formula recognizes that a citizen of a rich nation consumes 10-20 times more fossil fuel and other nonrenewable resources as a typical citizen of one of the world's developing nations. Therefore, the over-consumption of resources in the more affluent nations poses at least as great a threat to the welfare of future generations as does the sheer size of the human population.

Obviously, the IPAT formula is a simplification. But it provides a way to begin to understand the complex population-environment relationship. Human demand for resources at any given level of technology is always the result of population multiplied by consumption, and consumption has generally grown more rapidly than population.[11] As population growth is slowing, consumption growth is emerging as the dominant factor increasing our pressure on the environment. According to the World Bank in 1999, average world income per person is rising at an average of 1.4 percent a year, whereas world population is rising at around 1.2 percent per year. Economic growth and increased consumption reinforce each other. Greater consumer demand fuels economic growth. Increased affluence allows people to consume more. Moreover, consumption is not just pursued for need or convenience; it is also a means for people to express social status and power. For these purposes, consumption appears to have no practical upper limit.[11]

Some systems of economic activity have already reached or exceeded some important environmental limits.[13] As examples, five major areas where human populations have already exceeded local, and possibly global, limits are:

(1) Biomass appropriation: Humans are already using more than 40 percent of the productivity of land-based ecosystems.
(2) Climate change: The size of today's fossil-fuel based economy is the dominant cause of greenhouse gas accumulation, which is implicated as the cause of global climate change.
(3) Ozone shield depletion: The global ozone layer is thinning faster than predicted, and significant thinning is now evident over both the North and South Poles.
(4) Land degradation: 35 percent of the Earth's land already is degraded, and we have lost a quarter of the world's topsoil.
(5) Biodiversity loss: The human economy has grown so large that there is no longer room for all historical species; the extinction rate is 10,000 times as fast as pre-human extinction rates.

Considerations for a Sustainable Future

The population-environment debate is strongly polarized.[14] On one side is the "Malthusian Crisis" position,[16] which holds that rising human populations result in increased pressures on resources and pollution loads. This pressure builds to a catastrophic level, causing a collapse of the economy and society, with an increase in the death rate and a decline in the population. In this scenario, we do not achieve sustainability through choice or plan—it is forced on us by nature. Malthusian advocates usually suggest that catastrophe can be avoided as long as humanity heeds the warning signals and takes the necessary steps in time.

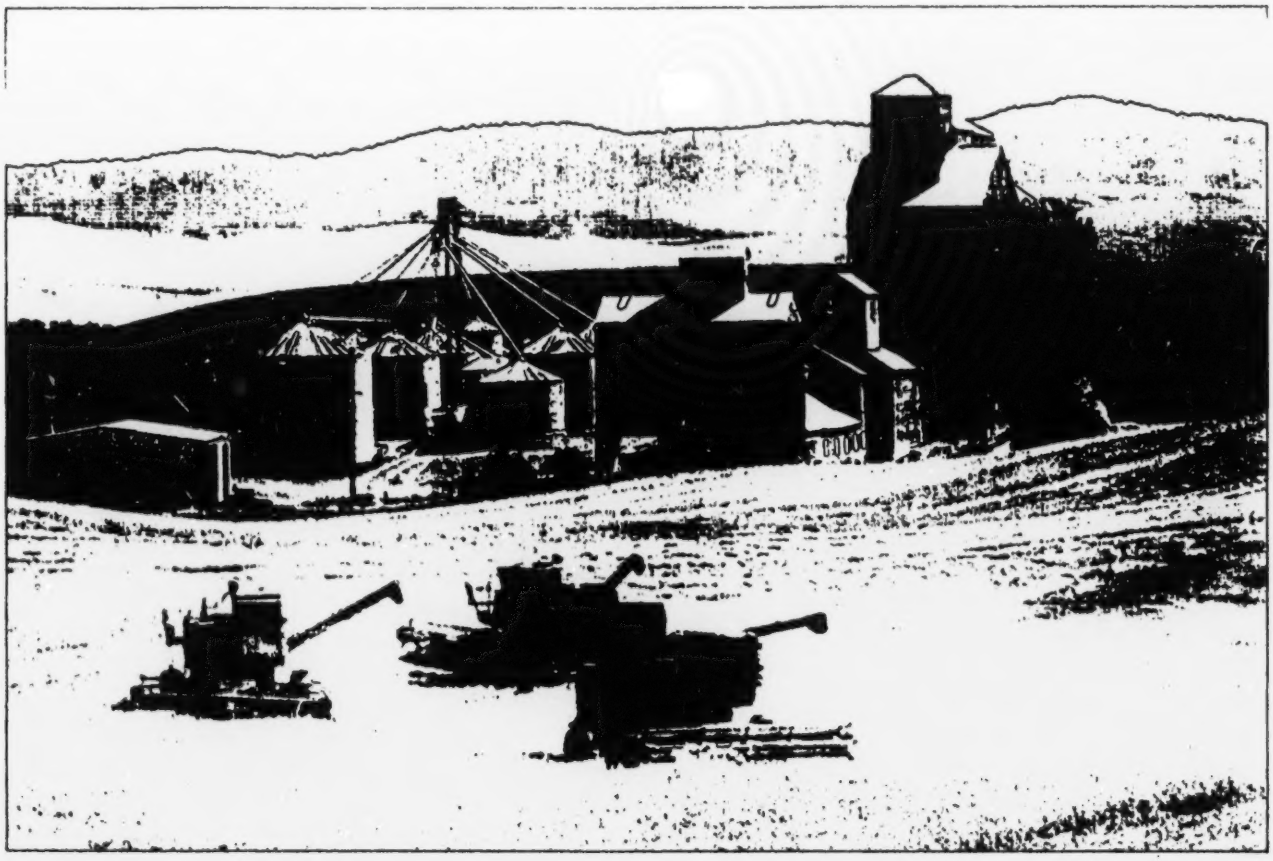
On the opposing side is the "Economic Adaptation" approach.[17] In this scenario, humans adapt to the problems that our development produces without grave setbacks. In the process, we gain increased productivity and efficiency, as well as improved human welfare. Proponents of this view consider population growth as an asset, producing more brainpower to deal with any specific problem. According to this view, increased population stimulates economic growth by increasing labor, markets, and the rate of innovation; technology will solve all global problems, including environmental ones.

The major flaw with both the Malthusian and the Economic Adaptationist approaches lies in the belief of their proponents that they will always hold true. In reality, both may be true of different civilizations at different historical periods, but a comprehensive theory must be able to account for both approaches. More recently, new theories offer alternatives to these two approaches. One such alternative is the "Pressure-State-Response Model."[11]

The Pressure-State-Response Model characterizes human interaction with the environment on a systems level. Changes in the environment caused by human activities act as feedback from the global system. How we respond to this environmental feedback depends on a variety of factors – such as level of knowledge, willingness to recognize the feedback, and ability to respond. Our response in turn changes the pressures we place on the environment, and the cycle starts all over again. However, overly simplistic solutions can often lead to further problems. Therefore, the key to this systems-based approach is good scientific understanding of the problem, its impacts and alternative solutions.

Earth's Carrying Capacity

Carrying capacity is a term derived from ecology, where it means the maximum number of animals of a species that a habitat can support indefinitely without degrading the resource base.



Opinions vary widely on the numbers of people that individual areas, or the world as a whole, can support. There is also a lack of objective analyses of the relationships between population and environment.[1] Some past research looked into the concept of carrying capacity as related to human populations.[7] Other studies have cautioned that the concept of carrying capacity must be extended beyond its biophysical components to include social and cultural factors when applied to human populations.[18] While carrying capacity can change through time due to changes in external environmental conditions, human carrying capacity can change through time due to human innovation and technology.

The first two estimates of the Earth's carrying capacity date from the 17th century and were surprisingly close to the central range of modern predictions: between 6 billion and 13.4 billion. Some science fiction estimates, based on capturing the total energy flow from the sun, have been has high as a quintillion. More serious recent estimates range from 1 billion to 2 billion people in relative prosperity, to 30 billion people existing on minimum rations and using every available hectare of suitable land for high-intensity food production. Given the complex reality of human population-environment interactions, estimating the Earth's carrying capacity for human populations is a forlorn task at our present state of knowledge and understanding.[19]

Achieving Sustainability

Where do we stand in our efforts to achieve a sustainable world? Although it is difficult to view the facts without bias, it is clear that no relationship is more important for us to understand than that between human population and the environment.[1] An increasing body of knowledge garnered over the past 50 years demonstrates that the collective impact of human numbers, per capita consumption, and technology is exploiting an increasing proportion of the world's resources at an unsustainable rate. Historically, the recognition by humans of their impact upon the Earth has consistently lagged behind the magnitude of the damage they have imposed; thus, seriously weakening efforts to control the damage.[13] Despite this situation, global human populations are expected to grow another 50 percent over the next half century, before leveling off at perhaps 10 billion people by 2100.

In addition, the world is becoming increasingly urbanized. Before 2010, more people will be living in urban areas than in rural areas,[20] creating huge demands for development of infrastructure to support delivery of drinkable water, treatment of sewage and other wastes, transportation of people and goods, as well as for food, shelter, jobs, education, and health care. At the same time, rates of consumption are rising throughout the world.

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Researchers have estimated that if everyone in the world were to live in the way we do in the United States today, three more planets comparable to Earth would be needed to support them.[1]

The Role of Technology

As we have seen, population and consumption taken together determine the level of human demand for resources.[11] However, the way in which demand is satisfied through the use of technology is also crucial. It is possible to satisfy demand through sustainable technologies, such as solar power, or through unsustainable technologies like burning fossil fuels. As a general rule, almost all technologies that were sustainable when first introduced became unsustainable as human population densities and consumption levels increased. According to the AAAS report, we are currently engaged in a race with time and our own limitations to find and adopt technologies that can sustain up to 10 billion humans on a finite planet with sensitive ecosystems.

Some researchers emphasize that the quality of life experienced by human beings comes in part from goods and services produced by human economic activity, and in part from goods and services from Earth's natural ecosystems. Among the "free" services provided by healthy ecosystems are cleansing of air and water, storing and cycling essential nutrients, maintaining the composition of the atmosphere, generating and maintaining productive soils, absorbing and detoxifying pollutants, maintaining hydrological cycles, and many others. Unfortunately, economists and ecologists have usually studied economic and natural commodities separately. One study from the University of Maryland pointed out that most of the goods of nature—such as food, fibers, and raw materials—have been incorporated into the marketplace, but most of the services of nature have not. The authors concluded, "even if we totally ignore any intrinsic right of other forms of life to share the Earth with humans, we cannot escape the need to maintain a healthy biosphere in order to provide ecosystem goods and services directly to our welfare."[7]

To sustain a healthy and diverse ecosystem, we need to maintain biological diversity, ecological integrity, and natural capital.[21] Efforts to conserve biological diversity could be too little too late in the face of overwhelming increases in human population and escalating pressures for economic development and resource exploitation nearly everywhere around the world.[22] At its root, the accelerating loss of species and other strands of the fabric of life are driven by the unprecedented expansion of humanity and its material demands of the last century.[23] To ignore the problem of human population—whether for political, ideological, or theological reasons—establishes a policy that inevitably leads to habitat loss and species depletion. Researcher H.T. Morowitz warned in 1991, "no discussion of managing global habitats and preserving species can avoid the population imperative."[24]

Although the idea of sustainable development has been both misunderstood and misused,[25] there is growing support for its basic aim of meeting the needs of the present without compromising the ability of future generations. This is simply a matter of intergenerational equity; if we behave in ways that are not sustainable, we are effectively stealing from future generations. Unfortunately, many aspects of our modern lifestyle are not sustainable.[21] In sustainable development, a serious ethical conflict evolves between a right to have children and a right to a decent life of present and future generations.[26] If the carrying capacity is exceeded, and a decent life is no longer possible for all, restrictions in the right to have children must be accepted. Under these conditions, societies may have to control population to protect future generations and the sustainability of the Earth.

Conclusions

Although it has long seemed obvious that there is an important relationship between human population and the state of the environment, quantitative analysis of such relationships has not been adequately pursued and they are often poorly understood.[1] General statements, speculation, and intuitive deductions about

LIZ GILBERT, FOR THE DAVID AND LUCILE PACKARD FOUNDATION

the impacts of various aspects of human population on the environment are no longer a sufficient basis for effective action. Additional evidence and analyses are badly needed. Nevertheless, humans are modifying ecosystems and global systems faster than we can understand the changes and prepare responses to them.[11]

In view of the dynamic relationships between size of the human population and the state of the environment, it is currently not feasible to estimate the Earth's carrying capacity for people as an absolute. Nevertheless, as Preston Cloud, a renowned geologist, noted in 1971, "nothing can increase infinitely on a finite Earth." The eventual necessity of a steady-state population at some level has been evident to many for a long time.[27] Therefore, the complex relationship between population, consumption, and technology—together with the choices that we make about the quality of life—will determine the number of people that a local area, or the Earth as a whole, can support sustainably.[1] The central question is: What kind of world do we wish to leave for those generations who come after us?

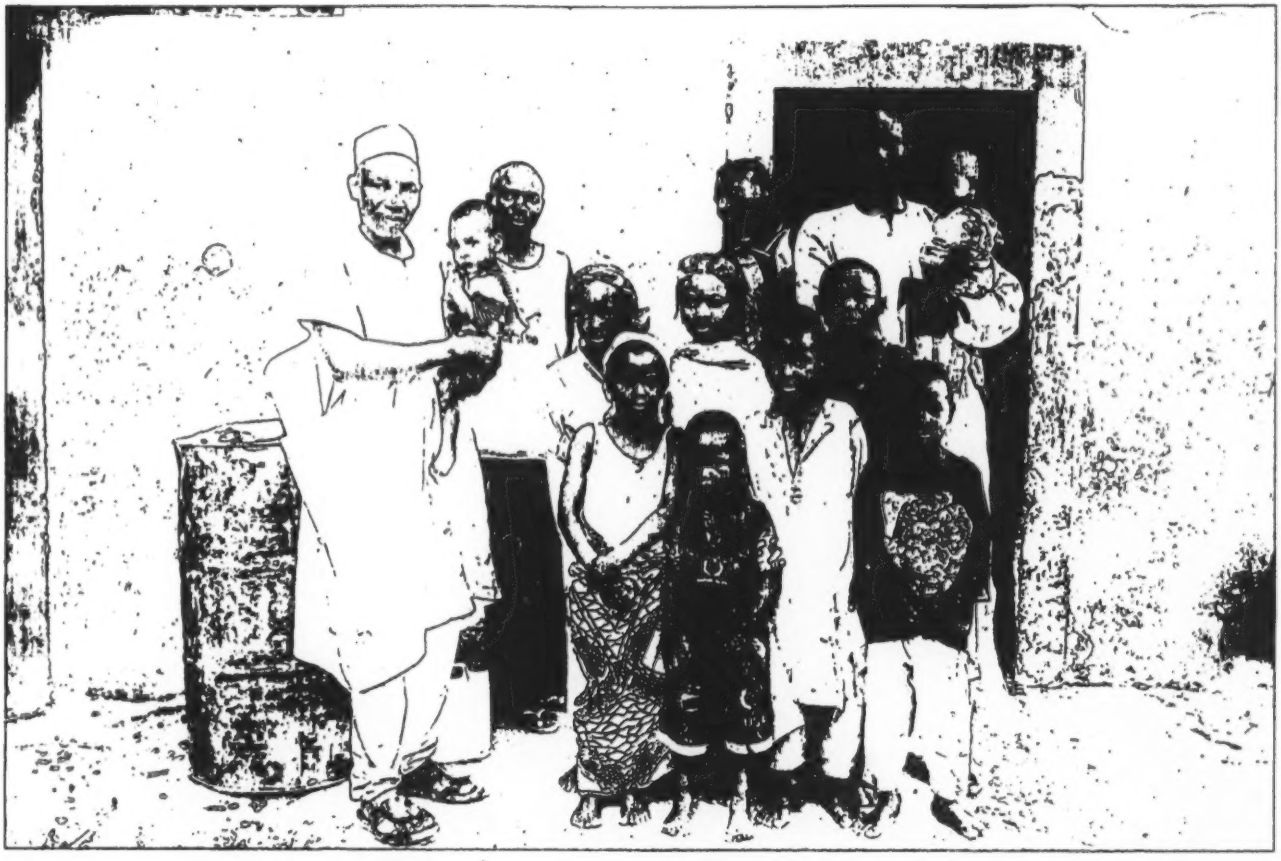
Human populations will attain sustainability at some point in the future. The issue is will this sustainable population exist with a dull, monotonous lifestyles in dangerous, unhealthy landscapes, or will it enjoy biological and cultural diversity with healthy and nurturing opportunities for everyone? In the meantime, current national and global trends in land development and population growth necessitate a substantial increase in research about the population-environment linkage and accelerated protection of critical areas for conservation of biological diversity.[7, 28] In the words of Ian Lowe, the reconciliation of ecological and economic considerations is the central moral and political issue of our time.[21] A final thought from Albert Bartlett, a well-known scientist and population policy advocate, is pertinent. He counseled that "when competing 'experts' recommend diametrically opposing paths of action regarding resources, carrying capacity, sustainability, and the future, we serve the cause of sustainability by choosing the conservative path, which is defined as the path that would leave society in the less precarious position if the chosen path turns out to be wrong."[29]

What Does Population Have To Do With U.S. Foreign Policy?

Remarks by Suzanne Petroni, U.S. Department of State

On his second day in office, President George W. Bush decided to reinstate the so-called Mexico City Policy. Then, in June 2001, the United Nations General Assembly held a Special Session on HIV/AIDS. These actions are evidence that population and family planning issues indeed come up in foreign policy discussions. What I want to do is explain why these issues concern those of us in Washington who make and implement America's foreign policy. I hope to explain why the U.S. Government is so interested in these issues that we have made enhancing global health and stabilizing world population growth among our top foreign policy goals; and so interested historically that we have spent over 30 years helping other countries to address these challenges.

In doing so, I am going to explore the interrelationships between global population growth, education, jobs, AIDS, gender violence, and the environment.



Population: The Numbers

Those of us who work in the population field often talk in numerical terms. Six-point-one billion people living on earth; more than 200,000 people added to our planet each day; over half a million women dying of pregnancy-related causes every year; 36 million people now living with HIV or AIDS.

These are serious and often catastrophic numbers that pose significant challenges to the world. But as the international community has agreed, in order to affect these large-scale figures, we need to focus on the individual. Providing more choices and opportunities to individuals, especially to women, is the solution to some of the serious global challenges we face.

There are hundreds of millions of women worldwide who don't have the ability to decide how many children they will have, or when they will have them; and they often don't have any trained health personnel to assist them when they give birth. Millions of girls and women cannot go to school or work, cannot drive, or cannot vote—simply because of their gender. Even more deplorable, one in three women worldwide will be physically abused in her life. Tens, perhaps hundreds of millions of people, are forced to move from their homes because there is simply no more land, food, or water to sustain their families and their communities. There are no more jobs for them, and no more room in the schools for their children. Billions live in large, densely populated, polluted cities.

Most of these challenges are caused by a disconnect between the rate of population growth and the ability of the community, country, or the Earth to meet the needs of its people. The most rapid growth is occurring in developing countries—those that are least able to deal with the needs of ever-increasing populations. These are countries such as Uganda, Angola, Cambodia, and Yemen—countries where the average woman has five, six, or seven children; where per capita income is less than $500 per year; where one child in eight dies before the age of five; where one adult in 10 is HIV-positive; and where millions are victims of wars and natural disasters.

So on a large scale—and this is where our foreign policy comes into play—stabilizing population growth can promote environmentally sustainable development, help economies grow, improve trade opportunities, and mitigate future global crises. These are national security and economic issues. But we in the State Department, and throughout our country, also can't ignore the fact that all 6 billion of us live in one common world.

Human Impacts

At the United Nations' International Conference on Population and Development held in Cairo, Egypt in 1994, the international community agreed on a comprehensive approach to achieving a sustainable world population. This approach includes: ensuring universal access to reproductive health care and family planning; reducing infant and maternal mortality; preventing the spread of sexually-transmitted diseases; improving the economic, social, and political status of women; reducing the gaps between boys and girls in education; and reducing wasteful resource consumption.

We have seen some progress since the Cairo conference. But many challenges remain. I've seen evidence of these challenges around the world. In a refugee camp in Uganda, millions of people want family planning, but don't have access to it. In Jordan, where women have four or five children on average, women I talked to told me they are simply exhausted—that they don't want to have a sixth or seventh child. They can't afford to feed or care for the children they have now. They also told me how very empowered and how grateful they felt to have the ability to decide when and how many children to bring into their economically desperate situation.

A great deal of the work I do is with refugees. These are people living in tents or collective centers, in unstable and uncertain conditions. They have been uprooted from their lives, often in a horrific manner. Their homes and their communities have been destroyed. Whether they're Kosovar, Azeri, Somali, Palestinian, or Afghan, these women always tell me the same thing: they want to be able to decide whether and when to have children. These are the messages I hear from people in non-refugee situations as well. Men and women worldwide want smaller and healthier families than their parents had. I can also tell you that they so greatly appreciate any assistance that helps them to reach this goal.

More than half a million women die each year as a result of complications resulting from pregnancy. This is one woman per minute—the equivalent of three jumbo jets full of pregnant women every single day. Women should not have to die because they're pregnant. Unsafe abortion kills some 80,000 women each year. I've talked with many women in Eastern Europe and the former Soviet Union who had five or six abortions in their lifetime. We all know that women would much rather prevent an unwanted pregnancy than resort to abortion. This is as true in Kentucky as it is in Kazakhstan. And we know that by making family planning available, abortion rates decline dramatically.

Where women are poor, uneducated, and have little influence in society, family size tends to be large and population growth rates high. Population programs are most effective when they center on improving the education, rights, and status of women. Educated women receive better health care, marry later, and are much more likely to use contraception to space their children. Their children are much more likely to survive infancy. Girls with just a few years of schooling are far less likely to become teen mothers than those without education. And teen mothers are five times as likely to die in pregnancy, as are those just a few years older. In this context, education—even just a small amount—is the difference between life and death. The good news is that universal education goals are achievable with money and political will.

Sadly, AIDS is a pandemic for which we have no cure. In several countries, more than a quarter of the population is HIV-positive. AIDS is diminishing the lives and livelihoods of people throughout Africa, slashing life expectancy rates to below 40 years in some places, and now affecting women at a faster rate than men. The disease has orphaned millions of children and devastated social services. AIDS obviously threatens the ability of developing nations to progress, and it is becoming a security crisis as well. It is a threat to all parts of the globe; for example, it is growing faster in the former Soviet Union than any region to date. We have no cure for AIDS, but we know how to prevent it. Through comprehensive reproductive health information and services, we can help slow the disease's spread.

Environmental Connections

The threat to our environment is another challenge we know how to face. The impact of more people using the Earth's finite resources is causing irreversible damage to our air, water, land, forests, and fisheries. Our natural resource base is shrinking, while the pressures upon it—fueled by increasing consumption and population growth—are increasing rapidly. Things like food and water shortages concern us for humanitarian reasons, but we also recognize the toll that they take on health, economic development, and overall food production. They also, for example, raise the likelihood of regional conflicts over water.

Half of the world's original forests are gone. Forests are needed to help maintain our climate and many of our ecosystems, as well as to provide wood products. The burning of forests, wood, and fossil fuels is causing unhealthy pollution and is contributing to global warming.

Deserts are spreading and water tables are declining in a third of the planet. The loss of land and water stretches the world's ability to provide food to support today's population, not to mention our future population. And because of both natural growth and migration to urban areas, the world's cities are growing faster than ever before. Urbanization encroaches on farmland, destroys wildlife, and threatens sensitive ecosystems.

U.S. Responses

These are truly global challenges - they don't stop at a country's borders. But there is a lot that we can do at the individual and community levels. We can change our consumption patterns here at home. At the international level, we can help other societies learn to grow at sustainable rates, and in sustainable manners. We can help to give people in other parts of the world, particularly women, choices and opportunities that you and I take for granted.

We already do this through financial and technical assistance. We've been a leader since the 1960s, when President Nixon called for Congress to fund international family planning services and urged the United Nations to take a leadership role in this field. But we now spend less than one percent of our federal budget on international affairs, and less than half of this on humanitarian and development goals. This is simply not enough.

Our funding for international family planning is not at the level it should be, in large part because too many people just don't understand what this assistance means. Our assistance means that AIDS won't be allowed to continue its rapid, devastating spread. It means that millions of women around the world won't continue to face unintended pregnancies or resort to abortion — all too often unsafe abortion. It means that women will not continue to die as a result of pregnancy, and that their children will have a better chance of living beyond their first birthday.

President Bush has committed to maintaining our funding for international family planning at $425 million in 2001. This is not bad, but it's still below where we were in 1995, when we contributed $541 million. This $127 million difference is just a tiny fraction of a fraction of our federal budget, but let me tell you what it could do:

This difference would mean that 8.8 million more couples will use contraception, leading to:
—1.1 million fewer unintended births;
—1.7 million fewer abortions;
—11,000 fewer maternal deaths; and
—69,000 fewer infant deaths.

So what really isn't a lot of money by our federal budget standards really has a staggering impact in terms of lives saved and health improved.

I want to leave you with a final thought. We are the most prosperous nation on Earth. For national security reasons, we are absolutely concerned about these issues. But as Americans, we also have a profound interest in safe, voluntary family planning; a moral interest in saving human lives; and a practical interest in building strong communities, societies, and nations. We do a lot, but we need to do much more. We can save lives, protect health, and ensure that the Earth and its resources will not only survive, but will thrive throughout the new millennium.

Q & A

Following the three panel presentations (included in the Perspectives section), IWLA members and national staff at the 2001 IWLA National Convention submitted questions on the topics presented. Those questions, along with their answers, are presented here. The answers were drawn from numerous experts, including those who spoke at IWLA's National Convention and reports from government agencies and other organizations currently working on population and environmental issues.

In the questions and answers that follow, you will find detailed information on topics such as IWLA's current population policies and programs, worldwide demographic trends, environmental impacts, family planning, related U.S. foreign aid programs, and women's equity. Further details on all of these issues are available in the Resources section of this *Action Guide*.

Q: Why should a conservation organization be interested in population issues?

A: Population growth, population density, migration, and consumption patterns combine to have serious impacts on the world's natural resources. In order to successfully reach conservation goals, the impacts of population trends must be recognized and effectively managed.

The members of the Izaak Walton League have long recognized that a balance must be struck between population and resource consumption. This is demonstrated through the series of policies they have adopted over the past three decades that deal with sustainability and population issues (discussed in the Policy Background section). IWLA members recognize that rapid population growth and unsustainable consumption patterns pose threats to both human welfare and the natural environment. This conclusion is supported by the documented effects of population pressures on natural resources.

For example, recent studies have shown that the underlying causes of biodiversity loss include population growth and unsustainable resource consumption.[30] Growing populations in some of the world's most ecologically sensitive areas—and demands for raw materials or products made from natural resources from these regions, including in developed nations—are resulting in the permanent loss of plant and animal species. Current projections are that by the end of the 21st century, the Earth will have permanently lost more than half of all its plant and animal species.[1]

Q: What are the effects of population growth on the environment? How many people can the Earth support?

A: The relationship between population and the environment is complex, and opinions vary widely on the numbers of people that specific regions—or the world as a whole—can support. One thing, however, is clear: Over the past 50 years, the collective impact of our population has been substantial. For example, in a remarkably short period of time, we have lost one-quarter of the world's topsoil and one-fifth of its agricultural land.

The environmental impacts of population are the result of many interrelated factors that include population density, rates of growth, population age structures, and resource consumption patterns. Our sheer numbers as well as the way we consume resources are equally important in determining sustainability.

Consider, for example, research conducted by Mathis Wackernagel and William Rees. They estimated that if everyone in the world achieved the same standard of living enjoyed in the United States and Canada, we would require three more planets comparable to Earth to support everyone.[31] Conversely, they estimated that the largest number of people who could support themselves at this level of affluence within the limitations of one Earth is between 1 billion and 2 billion.

To get a more in-depth look at population and environmental relationships, refer to the Perspectives section of this *Action Guide* at the presentation by Dr. David Trauger.

Q: What impact does immigration have on U.S. population and domestic resources?

A: It is difficult to ascertain the exact impact of immigration on domestic resources. Impacts are usually characterized on a local or regional basis, and they consider populations as a single body. However, looking at patterns of population movement affecting the U.S. can provide important information for characterizing impacts. The patterns of population movement affecting the U.S. include immigration. Another important trend in the United States is internal migration.

According to the Population Reference Bureau, nearly 70,000 foreigners arrive in the United States every day.[32] Most are visitors, not settlers. More than 60,000 are tourists, business people, students, or foreign workers. About 5,000 enter illegally, of which 4,000 are apprehended. During the 1960s, most immigrants were from Europe. Now, they are mostly from Latin America (52 percent) and Asia (30 percent).[32]

Immigration does have an effect on the size, distribution, and composition of the U.S. population. Because birth and death rates have reached relatively low levels in the United States, migration's role in the growth of national, state, and local populations has increased in recent decades. The U.S. population increases by 0.6 percent annually because there are more births than deaths each year. Legal immigration contributes another 0.3 percent to annual growth, or about 800,000 people per year.[32]

The proportion of total resource consumption that can be attributed to new residents as opposed to established residents is

unknown. Socioeconomic factors work to determine levels of consumption along with culture and personal-belief systems. In addition, immigrants also provide human capital for the domestic economy that in turn contributes to economic and social growth. Therefore, the net effect of immigration on domestic resources is not easy to quantify.

Internal migration in the United States is another important population trend that impacts domestic resources. Specifically, many of the United States' rural counties are experiencing population shifts. More than 71 percent of the 2,305 rural counties in the United States gained population between 1990 and 1998.[32] This is largely because more people are moving from urban to rural areas, and fewer people are leaving rural areas. New rural dwellers are a mix of retirees, blue-collar workers, single professionals, and former city residents.

This migration pattern has increased environmental stresses in rural areas that might not have traditionally experienced such rapid growth before. The challenge for many rural communities has now become incorporating new residents while still preserving rural character and environmental resources.

Q: What is population momentum?

A: Population momentum refers to the fact that even with declining rates of population growth, the age–sex composition of a population can create the potential for future growth. A population with a greater number of young people tends to grow faster than a population with fewer young people, even if the birth rates are comparable. This is because in the younger population, more people are just now reaching childbearing age. Put another way, women now may have fewer children than women in the past did, but today there are simply more women reaching childbearing age and having children.

For example, the average woman in both Taiwan and Japan has 1.4 children in her lifetime. However, Taiwan's population will continue to grow between 1999 and 2025 because it has a more youthful population. Japan on the other hand is projected to lose population because its population is older and beyond childbearing age.[33]

More than one billion young people around the world are entering their reproductive years. They will be facing decisions about whether and when to have children, and how many to have. Their decisions will determine whether or not population is stabilized and sustainability is achieved in the coming century.

Q: Isn't the population explosion a myth? Haven't fertility rates in more than 20 nations actually fallen below the replacement level of 2.1 children per woman for several decades now?

A: It is true that 44 percent of the world's population lives in countries where the fertility rate has already fallen below the replacement rate.[33] However, replacement rates are not the only factor in determining global population trends. In fact, despite the decline in global fertility rates and population growth rates, the total global population continues to increase in size. In 2000, the world's population increased by 77 million people.

The replacement rate refers to the level of fertility at which a couple has only enough children to replace themselves. The replacement rate is determined not only by fertility rates, but also by mortality rates. The greater the risks to children, the more children will need to born in order to "replace" the parents in terms of future childbearing. Therefore, replacement rates vary widely from country to country and depend on numerous underlying factors such as infant mortality and access to skilled health care. Therefore a replacement rate of 2.1 is only achieved in countries where life expectancy is high.

Ninety-nine percent of the world's population growth continues to occur in the less developed countries of Africa, Asia, Latin America and the Caribbean, and Oceania. The population growth rate for developing nations peaked during the 1960s at about 2 percent annually.[33] While that growth rate has been declining

ever since, the total population for these countries actually rose from 1.7 billion to 4.7 billion between 1950 and 1998.

In other words, although growth rates have been declining, the absolute numbers of people in these countries and in the world continue to increase. This is due to the effect of "population momentum" (see above). The effect of population momentum means that populations can continue to grow in absolute size even after growth rates decline. Therefore, world population is actually projected to continue to grow through 2050.[33]

What is not certain is how much and how quickly the world's population will actually grow. Estimates vary depending upon assumptions made about how much worldwide fertility rates will continue to decline in the coming years. Regardless of how optimistic these projections are, research done by the United Nations shows that at least 1.3 billion people will be added to the world's population over the next 25 years alone.

To get a more in-depth look at demographic trends and the effects of population momentum, look in the Perspectives section of this *Action Guide* at the presentation by Matthew Christenson.

Q: What does it mean to have a stable population?

A: A stable population is one that has an unchanging growth rate and an unchanging age-sex composition. If these factors remain stable over a long enough period of time, then the absolute number of people in the population remains fairly constant. This means that not only is the growth rate stable, but the age-sex structure of the population is not creating a means for future growth through population momentum (see question on population momentum above).

Zero population growth is a special case of population stabilization in which no growth occurs because the number of births and deaths in a population are equal. It is not necessary to achieve zero population growth in order to have a stable population.

Q: How does the AIDS pandemic affect global population trends?

A: HIV/AIDS has had, and continues to have, substantial and sometimes dramatic impacts on death rates in a number of countries most seriously affected by the pandemic, most notably in Sub-Saharan Africa. Despite the tragic local and regional impact of AIDS, however, global and regional populations continue to increase.

In a 1998 report, the U.S. Census Bureau estimated that more than 40 million people worldwide had become infected with HIV since the beginning of the pandemic in the late 1970s.[34] Over 11 million of these people had already died by 1998. During that time, the world's population has grown by 1.6 billion people.

Until now, Sub-Saharan Africa has been the hardest-hit region. The United Nation's Population Fund notes that with just 10 percent of the world's population, the region accounts for 71 percent of people living with HIV/AIDS.[35] The disease is estimated to have claimed 2.4 million lives in the region in 2000 and is having significant impacts on lowering life expectancy and producing millions of orphans. Despite these effects, Africa's population still grew by nearly 16 million between 2000 and 2001.[36]

Q: To what extent has family planning played a role in achieving the declines in fertility seen over the past 30 years?

A: Family planning is considered to be an important and direct factor in achieving declines in fertility rates over the past three decades. According to the U.S. Agency for International Development (USAID), since 1965 the use of modern family planning methods in the developing world has increased from less than 10 percent to more than 40 percent. Even in very low resource settings such as in Kenya and Bangladesh, use of family planning methods has increased dramatically.

Increased family planning use caused fertility to decline much more rapidly in the less-developed countries than it had during the fertility transition in the more-developed countries. Some demographers credit family planning programs with 40 to 50 percent of the fertility decline in less-developed countries since the 1960s.[37]

Worldwide, women are having fewer children—from an average of five children per woman in the 1950s, to less than three in 1995.[33] Overall, world population is growing by about 1.3 percent per year as compared to a peak of over 2 percent per year in the late 1960s.[38]

Q: What do reproductive health care and family planning include? What is the relationship between the two?

A: Reproductive health care is both an American and an international concept. It covers a range of services that nearly 100 million American girls and women participate in as a matter of course. These services include routine gynecological exams throughout a woman's life, generally starting in adolescence. They also include regular prenatal checkups for pregnant women, professional care during childbirth, and postnatal visits to promote the health of mothers and infants, provide immunizations, and offer advice on newborn care, breastfeeding, infant nutrition, and healthy lifestyles. Reproductive health care also includes educating young people about reproduction, sexuality, personal hygiene, and prevention and treatment of sexually transmitted diseases.

In addition, reproductive health care includes educating women and men about their options for family planning (including modern contraceptives) and providing requested services as well as follow-up care. Definitions of family planning usually include use and access to contraceptives, monitoring of fertility levels, prevention of adolescent pregnancy, and provision of educational materials. Family planning focuses specifically on services that allow couples to plan if they will have children and the number and spacing of those children.

Except when used to protect the life of the mother, an abortion generally signals a breakdown in another aspect of reproductive health care (such as inaccessibility to contraception) or is evidence of a social problem (such as rape) rather than a desired component of these services. However, reproductive health care can include safe abortion services, where it is legal and guided by medical protocols. The most recognized international definition of reproductive health care comes from the 1994 United Nations' International Conference on Population

and Development in Cairo, Egypt. While the definition includes abortion services and management of abortion-related complications, the final program report stated that abortion should not be used as a method of family planning. Similarly, definitions of family planning from the U.S. Centers for Disease Control and the World Health Organization do not include abortion as part of family planning.

Q: If you support reproductive health care and family planning, are you also supporting abortion?

A: No. It is entirely possible to support reproductive health care and family planning without supporting abortion. Abortion is generally the last resort for a woman; it is not a regular means of controlling fertility, except in situations where reproductive health care and family planning services are inaccessible.

For example, since 1973 the Helms amendment to the Foreign Assistance Act has prohibited the use of United States funding for the provision of abortion services. However, the United States still funds international family planning programs and was a signatory to the International Conference on Population and Development, described above. The United States, through its Agency for International Development (USAID), supports the many other components of reproductive health care and family planning that do not include abortion.

In fact, studies have shown that provision of other family planning and reproductive health care services actually decreases the incidence of abortion. In Russia, for instance, the number of abortions dropped nearly 30 percent between 1990 and 1994 after the availability of reproductive healthcare services went up.[47] Furthermore, according to a 2000 study published by the Alan Guttmacher Institute, researchers estimated the effects of a proposed $169 million increase for USAID population assistance. They concluded that the increased funding would mean that 11.7 million more couples in developing countries would receive USAID population assistance and, therefore, have access to and use modern contraception. As a result, 4.3 million women would be able to avoid an unintended pregnancy each year, leading to 2.2 million fewer abortions.[48]

Q: Do League policies support abortion?

A: No. IWLA policy specifically states that the League neither supports nor opposes abortion. The League's policies on population can be found on page 7 of this *Action Guide*.

The League's population policies are contained in one section of a group of policies dealing with sustainability. Members have adopted sustainability policies on population as well as economic reform, resource consumption, transportation, and the people's voice. The complete, current IWLA policy on sustainability can be found in Chapter 1 of the 2000 Conservation Policies Handbook and is also available on the IWLA Web site at www.iwla.org.

Q: By promoting smaller family size, aren't we devaluing our children and creating a sense that children are burdens?

A: Promoting families of a certain size conveys elements of control and even coercion that characterized population efforts in the 1970s and 80s. However, modern approaches do not explicitly promote smaller family sizes. Instead they work to promote healthy, successful families where each child is valued and wanted.

One of the most important breakthroughs of the 1994 International Conference on Population and Development was to define a program for population stabilization that provides choices and opportunities—not coercion and control. The participants at the Cairo conference agreed that, based on more than 30 years of research and experience, it is not necessary to tell an individual couple how many children to have. Data from developing and developed countries alike shows that healthy, educated women who have economic opportunities choose to have fewer children.

By determining their own reproductive future, couples can also help ensure that each child can be financially and emotionally supported. Studies have shown that parents with fewer children are able to devote more time and money to giving each child adequate food, health care, and education. [39] Rather than devaluing children, the goal is to help ensure that each child is wanted, healthy, and has the opportunity to flourish.
Please note: *The IWLA policy, based on a 1970 resolution, does mention "limiting family size to two or fewer natural children." It is an aspect of League policy that could perhaps be brought more into line with current thinking.*

Q: Does the federal aid program address the problem of violence against women, including domestic abuse and female circumcision?

A: The United States does have a standing policy against female genital cutting. However, violence against women has historically been treated as a human rights issue rather than a health care issue. Recently, this has been changing, with human rights being joined with efforts to improve reproductive health care and overall health status.

According to the United Nation's Population Fund (UNFPA), gender-based violence is recognized as a major issue on the international human rights agenda.[40] In 1979, the United Nations adopted a resolution on the "Elimination of All Forms of Discrimination Against Women." Since that time, progress has been made in identifying gender-based violence as a human rights issue. However, according to UNFPA, less progress has been made in addressing gender-based violence as a public health issue. USAID's Population, Health & Nutrition Center (PHNC) focuses on programs dealing with family planning, reproductive health, HIV/AIDS, and other health areas. USAID does have a standing policy (effective as of September 2000) that opposes any practice of or support for female genital cutting.[41] USAID, as well as international organizations such as the United Nations, has begun working toward integrating the prevention of gender-based violence into reproductive health care programs.

Q: What are some of the effects and obstacles to educating girls and women in developing nations?

A: Education is a key factor in determining population growth and resource consumption patterns, but substantial barriers to women's education still exist. Throughout the world, the education of women has been associated with a desire for fewer children, increased use of contraceptives, and lower fertility rates.[33] For example, each year 1 in 16 women without secondary education gives birth. For women with secondary education, that rate falls to only 1 in 100.[42] It is clear that with more education, women have fewer children.

Investing in education for girls also has direct impacts on resource consumption. For example, education helps girls and women delay childbearing and take advantage of greater economic opportunities. This in turn can provide entire families with alternatives to subsistence lifestyles that could have serious environmental impacts. Subsistence agriculture, for example, is the principal cause of forest loss in Africa, Asia, and much of Latin America.[43]

LIZ GILBERT, FOR THE DAVID AND LUCILE PACKARD FOUNDATION

Unfortunately, despite recent increases in the number of girls enrolled in developing nations, there are still 75 million fewer girls than boys in school worldwide.[42] Economic, social, and cultural issues make girls' school attendance a complex issue. The lower number of girls in school is due mainly to a wide range of issues including: early marriage and childbearing; household duties; parental perceptions that secondary school is more beneficial for boys; school fees or school costs that parents must bear, including supplies and uniforms; worries about girls' safety; and limited job opportunities for women.[33] Despite these many obstacles, girls' and women's education will be a key element in stabilizing population growth and resource consumption.

Q: How can the United States influence population trends in other countries and regions—especially in China, India, and the countries of sub-Saharan Africa—without dictating policies and actions?

A: The United States' international aid programs do not seek to dictate policies and do not support coercive family planning policies. The U.S. Agency for International Development (USAID) is the principal U.S. agency working to provide foreign aid and programmatic support. According to USAID, the agency only works in nations in which they are invited to work by that country's government.[41] Therefore, countries working with USAID on population issues already have policies in place that support family planning and reproductive health initiatives.

In addition, USAID assistance is based on the free and informed choice and consent of individuals. By law, U.S. funds cannot support programs that use coercion or incentives to encourage the use of family planning. U.S. funds also cannot be used to perform abortions.

Q: In international family planning programs, what impacts do cultural considerations have? How do programs handle cultural differences without adversely impacting heritage, traditions, and social identities?

A: USAID and US non-governmental agencies that support population programs collaborate closely with the governments and communities of the countries where they work. Not only is this collaboration expected and even required by the host country, but U.S. and other international agencies have learned from long experience that sensitivity to cultural values and traditions is essential for successful programs.

Thus, for example, in some Muslim countries where women are not permitted outside the home, health care workers make home visits rather than holding sessions in clinics. In numerous African

countries, AIDS prevention programs use local singing and dance styles to get their educational messages out. Modern programs of family planning also focus on allowing individuals to make choices freely, within the context of their personal values, beliefs, and social heritage.

This ideal is also incorporated into programs on a country-by-country basis. For instance, while U.S. agencies provide some personnel support, most of the staff in the field are not Americans but country nationals who are more culturally fluent than any expatriate could be.

In addition, all U.S.-funded family planning and reproductive health programs are voluntary. Programs emphasize providing education and counseling before services are delivered. This allows programs to carefully fit the cultural norms and beliefs systems of the individuals and areas served.

Q: Why are we spending money on international health care and family planning and neglecting these issues domestically?

A: Annual spending on domestic health care far exceeds the amount of foreign aid the United States spends on these issues

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internationally. It is true that there is a great need for supporting health care services within the United States. However, domestic programs receive comparatively large amounts of federal funding every year.

For example, the U.S. Government spends roughly 19 percent of its total annual budget on Medicare and Medicaid (two major domestic health care initiatives) alone.[44] In comparison, international family planning programs receive only about 0.02 percent of the federal budget each year.[45] Put another way, Americans spend only $1.44 per person, per year on international family planning.

In addition, Americans do not foot the bill alone. Developing countries themselves provide a large proportion of the funding for their family planning programs. Other industrialized countries all make substantial contributions to this global effort as well. For example, the United Nation's Population Fund receives only 10 percent of its funding from the United States.[45] The other 90 percent of its funding comes from other countries.

Finally, there is also widespread agreement among Americans that the United States should continue to support international family planning efforts. Surveys have repeatedly shown that a large majority—between 75 and 80 percent, of Americans think that the United States should maintain or increase our current level of assistance to international voluntary family planning programs in developing nations.[46]

ACTION STEPS

In this *Action Guide*, we have opened a window on the process the Izaak Walton League uses to develop its conservation policies and reassess them over time. Policy deliberation and development occurs annually as IWLA members draft resolutions outlining the steps they would like the League to take in addressing serious natural resource issues. The policy statements on population discussed in this *Action Guide* emerged from this process. The fact that these statements are currently under review and discussion is testament to the fact that the process is not static but subject to evolution as new information becomes available.

By presenting this information, we intend to open the dialogue as widely as possible within the Izaak Walton League as well as to our colleagues and supporters outside. As a first step toward taking action, we invite you to use the resources provided in this publication and hold your own discussion on these issues. We encourage you to share the results of your inquiry with the League's Sustainable Population Campaign. Then, we hope you will select from among the additional action steps provided below to address these issues in a concrete way.

Carrying on the Dialogue

Here are six steps you can use or adapt to hold a discussion on population and the environment in your IWLA chapter or community. When you have completed your discussion, please complete and return the included feedback form to the League's Sustainable Population Campaign. Contact information is included on the form.

Step 1 Identify a group who can benefit from this discussion and whose perspective can contribute to the conversation. This could include your IWLA chapter or another environmental or conservation group you belong to, your church, school, or community group. The optimum size for a group is usually between five and 12. But it can also be a group of one—yourself!

Step 2 Select some background information participants can read independently, and then discuss it. You can order additional copies of this publication or make copies of relevant sections. Other materials can be found in the Resources section of this guide.

Step 3 Convene your group for an initial meeting. Discuss your goals for the discussion and the specifics of how you will reach them. For example:

- What do you hope to gain as individuals from the discussion?
- How can you share what you learn with a wider audience?
- How will you handle areas of disagreement?
- How many meetings will you hold and on what dates?
- Are there any local experts (university faculty, local planners, county or state agency staff) who could assist your learning process?

Step 4 Hold your discussion meetings. It is a good idea for one person to act as discussion leader or facilitator. He or she can help the group to stay on the topic and make sure that individuals can express their thoughts and opinions honestly and show respect for the views of others.

Step 5 Once you have held your dialogue and come to some conclusions, put your perspective into action by choosing to take one or more concrete steps. Refer to the list of other actions that follows for ideas of things to do at the individual, local, and national level—or come up with your own ideas!

Step 6 Be sure to record the group's conclusions, decisions, and actions. These can be shared with members of your organization, elected representatives, and others. On the page 38 is a sample format for documenting your efforts. Feel free to make copies or design your own format.

Please be sure to share a copy of your summary with the Sustainable Population Campaign. It will help the League in our own dialogue on these issues and enable the Campaign to better serve you and others in the future.

Additional Actions

This section suggests actions you can take to promote healthy relationships between people and our environment on an individual, community, national, and global level. Please refer to the

Resources section in the back of this guide for information useful in putting the following suggestions into practice.

At the individual level:

- Continue to educate yourself and others about population, conservation, and sustainability issues.
- Find ways in your own life to reduce your consumption of natural resources through recycling, decreased water use, and energy conservation.
- Make sure the young people in your life have all the factual information they need to make healthy decisions about their reproductive health. Help them obtain information and advice from sources you trust (such as religious professionals, school nurses, teachers and counselors, health professionals, and adult family members).
- Consider giving financial support to organizations that assist in population and conservation efforts. Find a charity in your area that provides services and programs that fit your individual beliefs and concerns. Consider making your next gift for a friend or family member a donation in their name.
- Write an opinion piece in your local newspaper. Let others know why you feel these issues are important and make suggestions for taking action.

At the community level:

- Continue the dialogue about population and environmental relationships in your IWLA chapter or other community organization. Invite local leaders or experts to speak on the topic. Let the media and others know when, where, and why you are discussing these topics. To find a local Izaak Walton League chapter, contact the Izaak Walton League's national office. (Contact information is included on the back cover of this *Action Guide*.)
- Work with others in your community to bring education on population, the environment, and sustainability into local classrooms.
- Provide environmental education opportunities outside the classroom through a local Izaak Walton League chapter. Contact a chapter near you for details on how to get involved.
- Work to make your community a place where the life choices for young people are expanded, so that early childbearing and marriage are not viewed as the only options.
- Work within your state and community to support comprehensive and coordinated community-based planning that balances environmental sustainability, long-term growth, and economic opportunities.

At the policy level:

- Organize a letter-writing, e-mail, or postcard campaign to tell Congressional representatives that you support U.S. foreign assistance programs that help provide economic opportunities (especially for women and girls), increased educational access, and assistance to expand family planning and reproductive health services.
- Support legislation and policies that encourage insurance plans to cover contraceptive services.
- Support the incorporation of sustainable development principles into foreign assistance programs and domestic policies.

POPULATION AND ENVIRONMENT PERSPECTIVES

Summary Sheet for Dialogue and Action

Attach Additional Sheets as Needed

1. Name of group or organization: _____

2. Number in your group and brief description (i.e., gender and ages, professional and other interests).

3. Background reading materials used. (List sections of this publications and other titles.)

4. Guest speakers invited.

5. Main points of consensus reached. (Describe the main areas that your group was able to agree on.)

6. Main areas where agreement was not reached.

7. Comments on the Izaak Walton League's population policies.

8. Actions that the group or individuals decided to take.

Please send a copy of completed form to:
Sustainable Population Campaign, Izaak Walton League of America, 707 Conservation Lane, Gaithersburg, MD 20878-2983

RESOURCES

This section contains resources that can help you extend the "Action Steps" section of this *Action Guide*, and launch your own outreach, education, or advocacy efforts. For additional materials or advice, please contact the Izaak Walton League of America's Sustainable Population Campaign at the address and phone number listed on the inside of the back cover. Also, please visit our Web site (www.iwla.org) for more information.

Publications

MacDonald, Mia. *Our Planet, Ourselves: Balancing World Population for a Sustainable Future.* Izaak Walton League of America, Gaithersburg, MD. 2000. Available for order online at www.iwla.org, (301) 548-0150.

Hren, Ben. *Conservation in a World of Six Billion: A Grassroots Action Guide.* Izaak Walton League of America, Gaithersburg, MD. 1999. Available for order online at www.iwla.org, (301) 548-0150.

Brown, Lester R., et al. *State of the World 2001.* The WorldWatch Institute, Washington, DC. 2001. Available for order online at www.worldwatch.org, (202) 452-1999 or (800) 555-2028.

AAAS Atlas of Population and Environment. American Association for the Advancement of Science. Washington, D.C. 2000. Available online at www.aaas.org/international, (202) 326-6400.

Footprints and Milestones: Population and Environmental Change. United Nations Population Fund. New York, N.Y. 2001. Summary and report available online at www.unfpa.org, (212) 297-5020.

Meeting the Cairo Challenge: Progress in Sexual and Reproductive Health, Family Care International. New York, N.Y. 1999. Report available for order online at www.familycareintl.org, (212) 941-5300.

Robert Engelman, Richard P. Cincotta, et al. *People in the Balance: Population and Natural Resources at the Turn of the Millennium*, 2000. Washington, D.C. 2000. Report available online and for order at www.populationaction.org, (202) 557-3400.

Government Agencies and Intergovernmental Organizations

The U.S. Agency for International Development's Center for Population, Health and Nutrition, produces fact sheets and publications regarding women's reproductive health status and the positive impacts of U.S. investments in reproductive health and family planning in poor countries. www.info.usaid.gov, (202) 712-4810.

U.S. Census Bureau, a national agency of the federal government that compiles facts and statistics about the U.S. population and global population trends. Online at www.census.gov, (301) 457-4608.

U.S. Department of Energy's Energy Efficiency and Renewable Energy Network has numerous resources for people looking to cut their energy consumption at home, in the office, and at school. Online at www.eren.doe.gov, (800) 363-3732.

U.S. Environmental Protection Agency provides a wide variety of information on environmental issues such as how individuals can reduce their consumption levels. Curriculum and resource materials for educators are also available. Online at www.epa.gov, (202) 564-0443.

The World Bank, provides regular reports on international issues, including health, economic development, and education. Online at www.worldbank.org, (202) 477-1234.

Continued

RESOURCES

The United Nations Population Fund, offers a range of information on population issues including women's reproductive health, women's rights, education, and AIDS/HIV. Online at www.unfpa.org, (212) 297-5000.

The United Nations Development Program, publishes regular reports on issues such as economic development, the environment, human rights, and health issues from an international perspective. This includes the annual Human Development Report, which provides statistics and analysis of major trend in human well being. Online at www.undp.org, (212) 963-8302.

Non profit and advocacy organizations

The Izaak Walton League of America's Sustainability Education Program and the Sustainable Population Campaign have general information on population and the environment. You can sign up to receive Action Alerts that provide information on upcoming legislation and policy actions. The *Sustainability Communicator*, a periodic newsletter on sustainability and population issues, is also available through the program. Online at www.iwla.org, (301) 548-0150.

Conservation International, periodically publishes technical books, journal articles, and policy papers on conservation issues. Available for order online at www.conservation.org, (202) 912-1000.
Planetwire, an online newsroom with regular feature stories, facts, and analysis of issues related to population, international family planning assistance, reproductive health, and the environment. Online at www.planetwire.org, (202) 326-8700.

The WorldWatch Institute, produces regular reports on environmental issues, consumption, and sustainability. Online at www.worldwatch.org, (202) 452-1999.

Curricular materials for teachers on population and related issues, along with other resources for educators, are available online at www.popoinfo.org. You can also contact Facing the Future at (360) 468-3888 or e-mail teachers@facingthefuture.org.

The Population Reference Bureau produces regular reports, newsletters, and fact sheets on population related issues. Curricular materials and other resources for educators are also available. Available online at www.prb.org, (800) 877-9881.

Reproductive Health Gateway, run by the Johns Hopkins Center for Communication Programs, is a database of resources on reproductive health for health professionals and others. Online at www.rhgateway.org, (410) 659-6300.

Population Action International produces fact sheets and publications on a range of population issues including population and the environment, reproductive health, and the status of women. Online at www.populationaction.org, (202) 557-3400. Population Action International also has a Web site specifically dedicated to legislative issues and updates, http://capwiz.com/pai/home/

InterAction, a consortium of international development organizations, produces reports and newsletters on U.S. foreign assistance and foreign policy. Online at www.interaction.org, (202) 667-8227.

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GREEN

THE SUSTAINABLE POPULATION CAMPAIGN

Join with the Izaak Walton League of America as we use our community base and grassroots experience to embrace the commonsense notion that economic prosperity, ecological health, and equitable sharing among all people not only go together, they depend on one another.

The Sustainability Education Program (SEP) is a conservation initiative of the Izaak Walton League. It works to bring the impacts of human population growth, economic development, and natural resource consumption into balance with the limits of nature for the benefit of current and future generations.

The Sustainable Population Campaign is the newest component of SEP. The campaign focuses on the relationships between population and the environment. The campaign supports the League's conservation mission by promoting policy and programs that will lead to a prosperous human population in a habitable world.

The campaign does this through:

Education and outreach to IWLA members and the general public.
Advocacy on League population policy positions at the national level and through an expanded grassroots network.

SEP provides reports, curricula, and fact sheets to help communities plan their own sustainability efforts. These are available on the IWLA Web site (www.iwla.org) or by contacting SEP by phone, fax, or mail (see contact information below).

Members of the SEP **Sustainability Network** receive the Project's free newsletter, *Sustainability Communicator*, along with action alerts on how individuals can help to bring about better public policies in support of sustainability in the United States and abroad.

For more information about SEP and the Sustainable Population Campaign, to join our grassroots network, or to request additional copies of this *Action Guide*, contact:

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